

# $\phi(2170)$

$$I^G(J^{PC}) = 0^-(1^{--})$$

OMITTED FROM SUMMARY TABLE

Observed by AUBERT, BE 06D in the initial-state radiation process

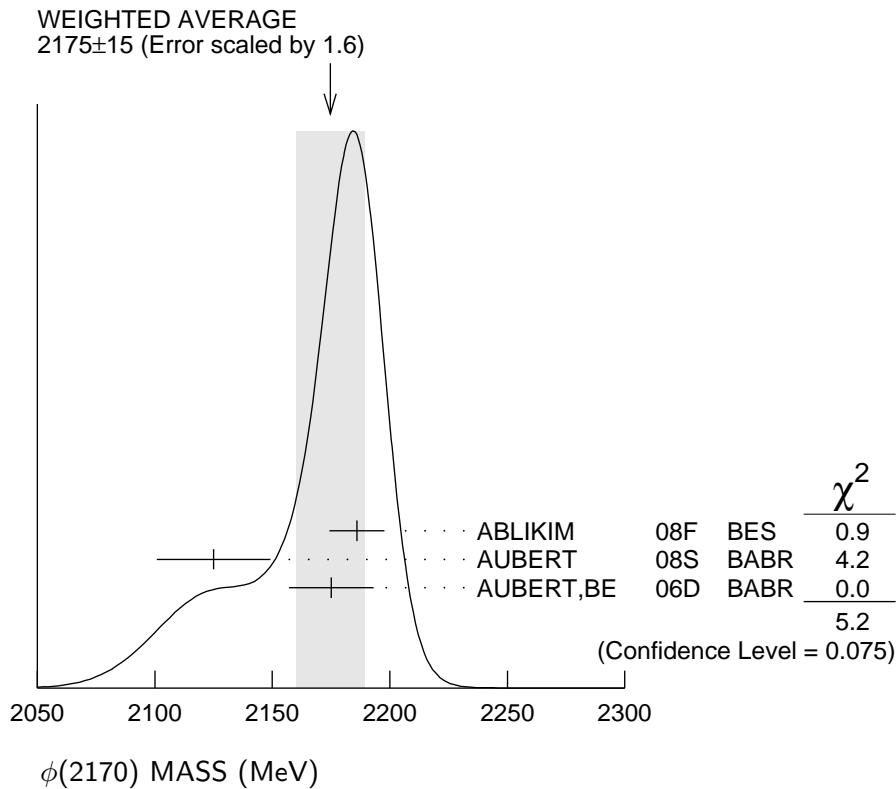
$$e^+ e^- \rightarrow \phi f_0(980) \gamma.$$

## $\phi(2170)$ MASS

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>2175±15 OUR AVERAGE</b>		Error includes scale factor of 1.6. See the ideogram below.		
2186±10±6	52	ABLIKIM	08F BES	$J/\psi \rightarrow \eta \phi f_0(980)$
2125±22±10	483	AUBERT	08S BABR	10.6 $e^+ e^- \rightarrow \phi \eta \gamma$
2175±10±15	201	<sup>1</sup> AUBERT, BE	06D BABR	10.6 $e^+ e^- \rightarrow K^+ K^- \pi \pi \gamma$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
2192±14	116 ± 95	<sup>2</sup> AUBERT	07AK BABR	10.6 $e^+ e^- \rightarrow K^+ K^- \pi^+ \pi^- \gamma$
2169±20	149 ± 36	<sup>2</sup> AUBERT	07AK BABR	10.6 $e^+ e^- \rightarrow K^+ K^- \pi^0 \pi^0 \gamma$

<sup>1</sup> From the  $\phi f_0(980)$  component.

<sup>2</sup> From the  $K^+ K^- f_0(980)$  component.



## $\phi(2170)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>61 ± 18 OUR AVERAGE</b>				
65 ± 23 ± 17	52	ABLIKIM	08F BES	$J/\psi \rightarrow \eta \phi f_0(980)$
61 ± 50 ± 13	483	AUBERT	08S BABR	$10.6 e^+ e^- \rightarrow \phi \eta \gamma$
58 ± 16 ± 20	201	<sup>3</sup> AUBERT,BE	06D BABR	$10.6 e^+ e^- \rightarrow K^+ K^- \pi \pi \gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
71 ± 21	116 ± 95	<sup>4</sup> AUBERT	07AK BABR	$10.6 e^+ e^- \rightarrow K^+ K^- \pi^+ \pi^- \gamma$
102 ± 27	149 ± 36	<sup>4</sup> AUBERT	07AK BABR	$10.6 e^+ e^- \rightarrow K^+ K^- \pi^0 \pi^0 \gamma$
<sup>3</sup> From the $\phi f_0(980)$ component.				
<sup>4</sup> From the $K^+ K^- f_0(980)$ component.				

## $\phi(2170)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $e^+ e^-$	seen
$\Gamma_2$ $\phi \eta$	
$\Gamma_3$ $\phi f_0(980)$	seen
$\Gamma_4$ $K^+ K^- \pi^+ \pi^-$	
$\Gamma_5$ $K^+ K^- f_0(980) \rightarrow K^+ K^- \pi^+ \pi^-$	seen
$\Gamma_6$ $K^+ K^- \pi^0 \pi^0$	
$\Gamma_7$ $K^+ K^- f_0(980) \rightarrow K^+ K^- \pi^0 \pi^0$	seen
$\Gamma_8$ $K^{*0} K^\pm \pi^\mp$	not seen

## $\phi(2170)$ $\Gamma(i)\Gamma(e^+ e^-)/\Gamma(\text{total})$

$\Gamma(\phi \eta) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$   $\Gamma_2 \Gamma_1/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.7 ± 0.7 ± 1.3	483	AUBERT	08S BABR	$10.6 e^+ e^- \rightarrow \phi \eta \gamma$

$\Gamma(\phi f_0(980)) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$   $\Gamma_3 \Gamma_1/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>2.5 ± 0.8 ± 0.4</b>	201	<sup>5</sup> AUBERT,BE	06D BABR	$10.6 e^+ e^- \rightarrow K^+ K^- \pi \pi \gamma$
<sup>5</sup> From the $\phi f_0(980)$ component.				

## $\phi(2170)$ BRANCHING RATIOS

$\Gamma(K^+ K^- f_0(980) \rightarrow K^+ K^- \pi^+ \pi^-)/\Gamma_{\text{total}}$   $\Gamma_5/\Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
<b>seen</b>	AUBERT	07AK BABR	$10.6 e^+ e^- \rightarrow K^+ K^- \pi^+ \pi^- \gamma$

$\Gamma(K^+ K^- f_0(980) \rightarrow K^+ K^- \pi^0 \pi^0)/\Gamma_{\text{total}}$   $\Gamma_7/\Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
<b>seen</b>	AUBERT	07AK BABR	$10.6 e^+ e^- \rightarrow K^+ K^- \pi^0 \pi^0 \gamma$

$\Gamma(K^*0 K^\pm \pi^\mp)/\Gamma_{\text{total}}$			$\Gamma_8/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>not seen</b>	AUBERT	07AK BABR	10.6 GeV $e^+e^-$

### $\phi(2170)$ REFERENCES

ABLIKIM	08F	PRL 100 102003	M. Ablikim <i>et al.</i>	(BES Collab.)
AUBERT	08S	PR D77 092002	B. Aubert <i>et al.</i>	(BABAR Collab.)
AUBERT	07AK	PR D76 012008	B. Aubert <i>et al.</i>	(BABAR Collab.)
AUBERT,BE	06D	PR D74 091103R	B. Aubert <i>et al.</i>	(BABAR Collab.)

### OTHER RELATED PAPERS

DRENSKA	08	PL B669 160	N.V. Drenska, R. Faccini, A.D. Polosa
MARTINEZ-T...	08	PR D78 074031	A. Martinez-Torres <i>et al.</i>
DING	07A	PL B657 49	G.-J. Ding, M.-L. Yan